UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/556,830	11/15/2005	Stefan Butenweg	2003P07040WOUS	1456

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EXAMINER
KAO, JUTAI

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/556,830	BUTENWEG ET AL.
	Examiner	Art Unit
	JUTAI KAO	2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>9-17</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>9-17</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>15 November 2005</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a) ☒ All   b) ☐ Some *   c) ☐ None of:
      1. ☒ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   Claim 9, 13 and 14 objected to because of the following informalities:

grammatical errors.

Regarding claim 9, the phrase "the upstream node upstream in respect..." on line

14 should be "the upstream node is upstream in respect..."

Regarding claim 13, the phrase "the message sent when the notified upstream

node..." on line 3 should be "the message is sent when the notified upstream node..."

Regarding claim 14, on line 1-2, "upstream node" is repeated twice in a row in

the phrase, "the upstream node upstream node reduces..."

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

4.   Claim 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Durinovic-Johri (US 2002/0176363) in view of Chiruvolu (US 7,372,814) and Beshai (US

2004/0202111).

Durinovic-Johri discloses a method for load balancing in routers of a network

overflow paths including the following features.

Regarding claim 9, a method for redistributing traffic in response to a traffic

overload or link failure (see "Upon detection of congestion in the primary path, a router

may select an alternate or overflow path..." recited in paragraph [0023]) in a packet-

based communication network (see network shown in Fig. 1), the packet-based network

having a first node and a link with multipath distribution of packets (see router 12 with

paths connected via link 26 and 30), with at least two outward links assigned to an array

of paths (see "at least two possible paths..." recited in paragraph [0023]), the outward

links capable of distributing the packets having the same destination (see "at least two

possible paths are selected...for each destination IP address..." recited in paragraph

[0023]), comprising: determining by the first node when a traffic load on a first outward

link exceeds a limit or the link fails (see "Upon detection of congestion" recited in

paragraph [0023]); redistributing the traffic load, via the first node, independently of the

external control entities (see "a router may select an alternate or overflow path stored in

the forwarding table of the router..." recited in paragraph [0023]), by routing at least

some of the packets, which would have been routed via the first outward link had the

load distribution not been changed, to a second outward link assigned to the same array

of paths as the first outward link (see "select an alternate or overflow path...in order to

transmit the data" recited in paragraph [0023]).

Durinovic-Johri does not disclose the following features: regarding claim 9,

sending a message to a upstream node to reduce the traffic load sent to the first node

by the upstream node that would be distributed via the arrays of paths via the first node,

the upstream node upstream in respect of the packets distributed via the arrays of

paths, sending the message if the traffic load does not drop below the limit as a result of

the traffic redistribution without a different limit being exceeded; regarding claim 10,

wherein the traffic load redistribution is separated into a first stage and a next stage,

and the initiation of the next stage is started at a time after the end of the first stage;

regarding claim 11, wherein a message is sent to the upstream node for traffic

redistribution at the upstream node, the message notifying to the upstream node to

reduce traffic that would be distributed via the arrays of paths via the first node;

regarding claim 12, wherein the message includes information about the traffic load

reduction.

Chiruvolu discloses a network system with color-awe upstream switch

transmission rate control including the following features.

Regarding claim 9, sending a message to a upstream node to reduce the traffic

load sent to the first node by the upstream node that would be distributed via the arrays

of paths via the first node, the upstream node upstream in respect of the packets

distributed via the arrays of paths (see "the downstream node issues the S-PAUSE

message to the upstream node...requesting the upstream node to reduce its

transmission rate to the downstream node..." recited in column 8, lines 51-56); and

sending the message without a different limit being exceeded (see "the upstream node

is requested to reduce its transmission rate in response to a first level of downstream

node congestion and to stop its transmission in response to a second level of

downstream node congestion" recited in column 14, lines 58-65).

Regarding claim 11, wherein a message is sent to the upstream node for traffic

redistribution at the upstream node, the message notifying to the upstream node to

reduce traffic that would be distributed via the arrays of paths via the first node paths

(see "the downstream node issues the S-PAUSE message to the upstream

node...requesting the upstream node to reduce its transmission rate to the downstream

node..." recited in column 8, lines 51-56).

Regarding claim 12, wherein the message includes information about the traffic

load reduction (see "the downstream node issues the S-PAUSE message to the

upstream node...requesting the upstream node to reduce its transmission rate to the

downstream node..." recited in column 8, lines 51-56).

Beshai discloses a method of courteous routing including the following features.

Regarding claim 9, sending the message if the traffic load does not drop below

the limit as a result of the traffic redistribution (see Fig. 6, block 608, wherein the system

first looks for an alternate route in overloaded situation; and see "if an alternate route is

determined not to be available in step 608, in which case some connection requests

must be rejected" recited in paragraph [0040]; that is, the system first tries to redistribute the traffic via alternate path, then, if the overloading is still not resolved and no alternate paths are available, the system then reduce the load to be carried by rejecting some of the connection calls, which involves sending the upstream signal similar to that disclosed in Chiruvolu).

Regarding claim 10, wherein the traffic load redistribution is separated into a first stage and a next stage, and the initiation of the next stage is started at a time after the end of the first stage (see Fig. 6, block 608, wherein the system first looks for an alternate route in overloaded situation; and see "if an alternate route is determined not to be available in step 608, in which case some connection requests must be rejected" recited in paragraph [0040]; that is, the system first try to route the data via an alternative path in the first stage of the redistribution, then starts rejecting call connections in a second stage after determining that no alternative paths are available).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Durinovic-Johri using features, as taught by Chiruvolu and Beshai, in order to allow data to be transmitted in congestion situation wherein no backup paths are available.

5.   Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durinovic-Johri in view of Chiruvolu and Beshai as applied to claim 12 above, and further in view of Huang (US 5,841,775).

Durinovic-Johri, Chiruvolu and Beshai disclose the claimed limitations as shown above.

Chiruvolu also discloses the following features: regarding claim 14, wherein the upstream node reduces the traffic load according to the message received or sends a message to the further upstream node to reduce the traffic load (see "the downstream node issues the S-PAUSE message to the upstream node…requesting the upstream node to reduce its transmission rate to the downstream node…" recited in column 8, lines 51-56).

Durinovic-Johri, Chiruvolu and Beshai do not disclose the following features: regarding claim 13, wherein the notified upstream node sends a message to a further upstream node for traffic redistribution at the further upstream node, the message sent when the notified upstream node cannot achieve the traffic load reduction for the first node via traffic load redistribution without causing a further upper limit for a traffic load to be exceeded.

Huang discloses a scalable switching network including the following features.

Regarding claim 13, wherein the notified upstream node sends a message to a further upstream node for traffic redistribution at the further upstream node, the message sent when the notified upstream node cannot achieve the traffic load reduction for the first node via traffic load redistribution without causing a further upper limit for a traffic load to be exceeded (see "…buffers were to overflow. It would send a message upstream to routers 60…When these buffer pools overflowed, router 60 would signal upstream to routers 50, 53, and 56…" recited in column 11, lines 21-36).

It would have been obvious to modify the system of Durinovic-Johri, Chiruvolu and Beshai using features as taught by Huang, in order to further improve the congestion protection mechanism.

6.   Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Durinovic-Johri in view of Chiruvolu, Beshai and Huang as applied to claim 14 above, and further in view of Ma (US 6,882,624).

Durinovic-Johri, Chiruvolu, Beshai and Huang disclose the claimed as shown above.

Durinovic-Johri, Chiruvolu, Beshai and Huang do not disclose the following features: regarding claim 15, wherein the upstream node, which receives the message to reduce the traffic load, is an edge node, the edge node reduces the load by reducing the limits for controlling an access to the network.

Ma discloses a congestion control method in a packet switched network including the following features.

Regarding claim 15, wherein the upstream node, which receives the message to reduce the traffic load, is an edge node (see "edge router…to reduce its transmission rate" recited in column 2, lines 31-46), the edge node reduces the load by reducing the limits for controlling an access to the network (Huang, Chiruvolu and Beshai all show the access reductions as shown the above rejections).

It would have been obvious to modify the system of Durinovic-Johri, Chiruvolu,

Beshai and Huang using features, as taught by Ma, in order to control the congestion

before the traffic enters or leaves the network.

7.   Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Durinovic-Johri in view of Chiruvolu.

Durinovic-Johri discloses a method for load balancing in routers of a network

overflow paths including the following features.

Regarding claim 16, a node (see node 12 shown in Fig. 1) for a packet-based

network(see network shown in Fig. 1) with multipath distribution (paths 26 and 30

connected to node 12 as shown in Fig. 1), comprising: a distribution array including a

first outward link and a second link (see link 26 and 30 in Fig. 1); a traffic overload

identifier that identifies traffic overload on the first outward link (see "Upon detection of

congestion" recited in paragraph [0023]); a redistributor that redistributes traffic to the

second outward link (see "select an alternate or overflow path…in order to transmit the

data" recited in paragraph [0023]).

Durinovic-Johri does not disclose the following features: regarding claim 16, a

transmitter for sending a message to a upstream node to reduce the traffic load sent to

the node by the upstream node that would be distributed via the arrays of paths via the

node, the upstream node upstream in respect of the packets distributed via the arrays of

paths, sending the message if the traffic load does not drop below the limit as a result of

the redistribution without a different limit being exceeded; regarding claim 17, a receiver for receiving a message to reduce the traffic load in a downstream node.

Chiruvolu discloses a network system with color-awe upstream switch transmission rate control including the following features.

Regarding claim 16, a transmitter for sending a message to a upstream node to reduce the traffic load sent to the node by the upstream node that would be distributed via the arrays of paths via the node, the upstream node upstream in respect of the packets distributed via the arrays of paths (see "the downstream node issues the S-PAUSE message to the upstream node…requesting the upstream node to reduce its transmission rate to the downstream node…" recited in column 8, lines 51-56);, sending the message if the traffic load does not drop below the limit as a result of the redistribution without a different limit being exceeded (see "the upstream node is requested to reduce its transmission rate in response to a first level of downstream node congestion and to stop its transmission in response to a second level of downstream node congestion" recited in column 14, lines 58-65).

Regarding claim 17, the node further comprises a receiver for receiving a message to reduce the traffic load in a downstream node (see rate controller 22 for receiving the H-PAUSE and S-PAUSE messages from the congestion detector 32 of the downstream node as shown in Fig. 2).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Durinovic-Johri using features, as taught by Chiruvolu,

in order to allow data to be transmitted in congestion situation wherein no backup paths

are available.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719.

The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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Ju-Tai Kao

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